Daniel Zalles :
Jim, let me know when you want me to start. --Dan

James Acker:
Dan, I'll make you the presenter now.   After you're done, you can make me the presenter again.

Daniel Zalles :
1.   DICCE provides a pathway for access to and use of Giovanni data in middle school and high school classrooms.

2.   Our strategy for this pathway is to help novice student and teacher users understand the technical terminology of the Giovanni data and visualizations, understand the basics of Giovanni visualization, comprehend the meaning of each data parameter, how each is measured, and whether the sources are data assimilation models, surface data collection instruments, or a remote-sensing satellites.

3.   Teachers and students run regional queries and use output from those queries to create lessons around what we call the DICCE Learning Environment, a tool on the SRI website. We also encourage teachers to consider importing the geo-output into Google Earth, where it can be overlaid by familiar geo referencing such as cities and roads, which the Giovanni visualizations do not provide. Google Earth in addition provides interactive opportunities for students and teachers to integrate the Giovanni output with data from other Google Earth compatible sources and even data layers that students and teachers input themselves from their own data collection procedures.

4.   Rather than navigating through mission idiosyncrasies, users go directly to a base map that they used to select a query area, and a list of data parameters organized by Earth systems. They select the data parameters, then specify the types of visualizations they want to investigate and the time ranges. We provide tutorial help for them to understand the basic structures of Giovanni maps, time series plots, and vertical profiles.

5.   Early in the project, we decided that rather than provide users access to all of the Giovanni data, we would focus on key "basic" data and organize the data not by mission but by Earth system domain. Our criteria for selection were that the data needed to be conceptually understandable to a mainstream high school level of understanding and be related to causes and effects of current climate change. We first chose monthly parameters, which we broke into

the categories Physical Ocean, Ocean Biosphere, Physical Atmosphere, Atmospheric Gases, Precipitation, Energy, Physical Land, and Land Biosphere.

6.   Then, more recently, we developed a set of daily parameters. The daily data are especially useful for looking at air pollutants.

7.   We then provide a set of supports on the DICCE Giovanni Resources Page. For example, this table differentiates the sources, measurement units, and palette characteristics of the data parameters.

8.   This support document is a schema of how each of the monthly data parameters factors in to our knowledge about current climate change. This is the first of three slides that build more information. This slide diagrams the certainties. The Giovanni data parameters are in italics.

9.   This slide superimposes mitigating influences on global warming, in light blue.

10.   ….and this slide overlays the uncertainties. Together these slides provide students a big picture that they can used to build meaning while interpreting regional geographic data about the various data parameters in our basic monthly data set.

11.   The DICCE Learning Environment provides a curriculum authoring tool with templates designed to create data-centered learning activities, presentations, and assessments around images from Giovanni data sets. Teachers and students with authoring privileges can save those images to a local drive, then upload them into DICCE LE.

12.   Teacher and student authors can also copy and adapt other published works or create their own work from scratch.

13.   Authors can create drafts or published versions of their work. Published versions appear in the common space on the site, but an author can easily un-publish and re-publish, and edit any version, whether in draft form or in a published state. DICCE LE is also a repository of curriculum and assessment and presentation exemplars open to any users, authors or not. Published materials can be viewed online or printed out and used as paper

activities in the classroom. This makes it easy to use in any classroom, whether or not students have access to computers.

14.   Here are two learning activity examples. In the first, students examine time series plots about climate change in central and northern New Mexico. In the second, students investigate maps of sea surface temperatures in the Western Pacific during a particularly strong El Niño year. One of our teachers lives in northern New Mexico and another lives in San Jose California.

15.   Eventually, we plan to have assessments for each of the major DICCE data parameters. Teachers are able to adapt the assessments to suit their students' grade level appropriate needs just as they can adapt the learning activities and presentations. Each assessment per data parameter starts with basic visualization and interpretation questions, then moves into more complex questions that require not only does interpretive skills but also science knowledge about what the data parameters represent. In this example, students are asked a question about some maps of CO_2 in a large section of Europe and North Africa. Recently, we added a tool that lets authors create versions of learning activities and assessments with answer keys that can be hidden from students.

Bob Myers :
Dan is your powerpoint available somewhere?

Daniel Zalles :
16.   For any major data parameter, we also developed trend guides that help students interpret regional increases or decreases in the different data parameters in relationship to the causes and effects of climate warming, and in terms of whether there may be alternative explanations for the trend. These trend guides are available in both DICCE G and DICCE LE.

Is everybody seeing my slides?

Bob Myers :
I am

Ruth Krumhansl :
yes

Bob Myers :
I want to get a copy later.

Tim Moore :
yes

Joan Labay-Marquez :
yes

Daniel Zalles :
So yes, I'll post the powerpoint on our web site soon

Bob Myers :
thanks

Daniel Zalles :
I'm glad everyone is seeing the slides. I'll continue now.

James Acker:
Also on the workshop Web site

Daniel Zalles :

17.   Lastly, we have tutorials and other help documents that teacher authors can make available to their students completing doing DICCE learning activities. For example, this slide shows how a student can access any tutorial about how to interpret Giovanni map data when doing a map centered learning activity.

18.   Everybody can use the content in DICCE G and DICCE LE, but authoring privileges in DICCE LE are restricted to project participants. Yet, the DICCE LE software is designed to extend authorship privileges to any number of people by permission.

We have been pleased to find that teachers are getting comfortable using DICCE without lengthy time-consuming training. We have done one-on-one training and group workshop training, and have tested independent self training as well.

20.   Though we are still in development, we have gotten some feedback from students and teachers during the first piloting year, which ended this past month. Over the summer, a large group of diverse high school students in a Southern California community did a DICCE learning activity that the teachers developed during the workshop the prior week. They compared San Diego and Greenland data. There was much positive feedback from the students about the experience.

21.   These are the key URLs.

22.   Very soon we'll have a master DICCE entry site that links to the other sites

James Acker:

Also accessible from the DICCE Resource page (findable with Google) and from the Giovanni home page (http://giovanni.gsfc.nasa.gov/) under "Application and Education Portals" at present.

Daniel Zalles :

23.   Thanks to Jim for organizing this important workshop. Any questions?

Tim Moore :
yes, I have one...

Daniel Zalles :
OK.

Tim Moore :
for Daniel - did your workshops focus on learning how to use and navigate through Giovanni, or was it more on the content of Earth Science modules

Daniel Zalles :
Both. Our goal was to build capacity of the teachers to understand the data and manipulate the software to create their own local data investigations. Only recently have we added more module exemplars for teachers who'd rather use or adapt something we give them rather than do all the work themselves.

James Acker:
Dan, could you mention where our pilot groups of teachers are located?

Daniel Zalles :
Sure. We have teachers in New Hampshire, Maine,and three places in CA: Oxnard, San Diego, and San Jose. A teacher in Colorado recently asked to get authoring proviileges too. Also, some folks active as curriculum developers in ESSEA now have authoring privileges too.

Ruth Krumhansl :
don't forget New Mexico

Daniel Zalles :

Oh yes, we also have a teacher in northern New Mexico

James Acker:

Thanks. I want to mention that Dan and I attended the ESSEA annual meeting in August and presented DICCE to the attendees there, many of whom author ESSEA modules or use them for curriculum training.

Daniel Zalles :

I hope I didn't go too fast. If anybody wants to re-see an earlier slide, let me know.

James Acker:

Paul Adams of Fort Hays State University showed 2 modules on Tuesday. His presentation will be online at the workshop Web site too.

Daniel Zalles :

Any other questions?

James Acker:

Thanks, Dan. We can take about a five-minute break and then start our roundtable.

Daniel Zalles :

OK. Should I give up the desktop?

James Acker:

Yes, you can click my name and make me the Presenter.

Daniel Zalles :

I just clicked you name

Bob Myers :
Nice info Dan!

juan pablo cisterna :
hi everyone

you repeat the slides?

James Acker:
Hello Juan

Daniel Zalles :
Thank you Bob.

juan pablo cisterna :
Hello James, How are you?

James Acker:
Unfortunately I realized that Mikelle Nuwer hasn't been getting the invitations to the workshop today; I emailed her and tried to call her, but she isn't in the office.

So I hope she'll have a chance to join us at some point. She uses Giovanni in introductory oceanography classes at the University of Washington.

OK, let's get started with our education roundtable.

As Giovanni grew in capability and in data, I realized that it could be a powerful educational tool.

But we never had a chance to create a Giovanni data portal specifically for education until the DICCE project was funded.

We have been learning, along with the teachers, the pitfalls and peaks of using Giovanni for education.

Daniel Zalles :
Jim, are you going to pose questions to the panel?

James Acker:
So today I'd like us to talk about the general advantages/disadvantages of using remote sensing data for education, and also what Giovanni can be used for (and what it shouldn't be used for, too!)

Yes, Dan, that's my plan - so the first thing I'd like the panelists to describe is a) how they've used remote sensing data in the classroom, or b) how they think teachers can effectively use such data in the classroom.

Tim Moore :
ok - I think what makes Giovanni cool is that 1) its easy access through the web and 2) it uses 'real' scientific data

I was at an education workshop in August using Giovanni, and the feedback on those 2 points was positive from the educators

James Acker:
Tim, have you taught with remote sensing data yourself?

Tim Moore :
At the graduate level, but not in K12 setting directly, which this workshop in August was meant for

Daniel Zalles :
I can speak for some of the DICCE teachers. Generally, they have been focusing on temperature precipitation and CO_2 in their local areas. There is also been interest by the New Mexico teacher in the snowfall data and the sea surface temperature data.

The San Jose teacher has focused on the sea surface temperature data.

Ruth Krumhansl :
scientific data sets like GIOVANNI that are increasingly becoming available online hold huge potential for engaging students in scientific work. However, most k-12 student work with data has been with student-collected data. There's very little research on how to bridge students from data they've collected themselves to professionally/ remotely collected data. There's a lot of potential, but a lot of work to do to figure out how to meet it

Bob Myers :
2.   In the year 2000, IGES began disseminating a program named the Earth System Science Education Alliance (ESSEA) to colleges and universities who wanted to use inquiry-based online geoscience modules. We were under a NASA grant to increase the Earth System Science (ESS) content knowledge of K-12 teachers. So we developed ESSEA with this view in mind and put teachers through professional development by means of problem- or inquiry-based modules. Geospatial data was to figure
prominently in our objectives – teachers were to analyze problems using this data.

Ruth, one way to do it might be to compare GLOBE data with remotely sensed data?

James Acker:
One objective of the GLOBE program was to have students collect data that could be related to remote sensing data (great minds think parallel)

Daniel Zalles :
A lot of promise is in the fact that Giovanni maps can be imported into geographic information systems like Google Earth and some more sophisticated programs too. These other programs can merge student data
with the Giovanni data

Amanda Truett :
Montgomery College students come from all over the world so in addition to language and culture challenges, we find a wide spectrum of science competencies that we must somehow 'shore up' in our freshman science classes. I need something that would bridge those variances for all my students of environmental and marine sciences. I tried several approaches but then found the Giovanni, which did the trick for me. I think this student statement speaks volumes: "WHat really makes this experience great is that there are graphs, plots, and pictures, etc. that gives you a visual rather than just words. I would recommend that if you want to learn more about science and doing fun research that people should
do this. I had a great experience learning about Giovanni."

Bob Myers :
I did not know Giovanni will go into Google Earth. I want to know more...

Amanda Truett :
One of many positive feedback statements after three modules of the students' choice.

James Acker:
I think that the undergraduate level allows more flexibility in learning how to use Giovanni than the K12 level.

Bob, any visualization in Giovanni comes with a KML output option that will display in Google Earth.

Tim Moore :
The one thing the K12 teachers wanted was prepared modules

Daniel Zalles :
Bob, when you produce a map in Giovanni, you get the option of downloading the data into Google Earth as a kmz file

Bob Myers :
Thanks, Amanda, what class did you have these kids in? General science or...

Ruth Krumhansl :
Undergraduate professors have done research with data. High School teachers have often not, so they are
novices when it comes to using data from a portal such as GIOVANNI

James Acker:
Dan, don't some teachers like Google Earth because of the better associated geospatial context (i.e., geological features, borders)?

Daniel Zalles :
Yes, some teachers like the Google Earth because it provides geo-referencing. If you're querying a slice of the Midwest for example, it's easy to lose track of what you're looking at but if you put it in Google Earth you can overlay with cities and roads

James Acker:
After Dan answers, lets pursue the K12 vs. undergraduate topic.

Ruth Krumhansl :
If the difficulties can be dealt with, I've found on several projects that hs and even middle school students like the challenge of trying to see patterns in complex data - even arguing about it!

Bob Myers :
Sounds like we can use STEM tools to get kids thinking critically

James Acker:
I think that Amanda has them in an environmental science class? (I type fast)

Daniel Zalles :
A challenge with using Giovanni output is in recognizing if there are problems in the data. We have a troubleshooting guide that explains the sorts of problems that students might run into when they examine
time series plots or maps.

Amanda Truett :
One objective is to create an instrument through which a student-driven curriculum might find footing; one that supports pathways in which students can adapat the content, but even more so the process that
explodes through the visualizations and an understanding of what the data mean. This understanding allows for the integration of learning processes and content into the daily lives of students and thier communities. My students like to share their new skills with each other so it has a broad reach.

Ruth Krumhansl :
the key is for them not to spend all of their time figuring out expert terminology and which buttons to push/ steps to follow. We want them thinking about the data

Jennifer Wei:
This is just FYI. The Giovanni team also developes some iPad apps prototype to cater the new generation needs

Amanda Truett :
Mine didn't have trouble with that. They all wanted to look at their countries of origin and see what they could find.

James Acker:
Agreed. I think the K12 environment needs more structure - efficient use of time is critical.

As Amanda notes, her students could be more flexible.

Amanda Truett :
I found that modules between 1-2 hours to complete is optimal.

James Acker:
Ruth, do you think that there needs to be much more context-setting at the K12 level?

Daniel Zalles :
The amount of time it takes to complete his relative to how much hands-on time you want students to have. If students generate the maps and time series plots, you need more time. If the teacher generates them ahead of time and simply asks the students to analyze still images, that takes less time.

James Acker:
Thanks Jennifer. I want to come back to that.

Amanda Truett :
Another student says: "Great exercises. In doing them you not only get to know that thre are
many resources for you to use but that they can ultimately end up as a career."

Bob Myers :
We provide a context within the ESSEA modules BTW

It sets up what the student will be investigating

James Acker:
Also noting that not all high schools can get everyone sitting in front of their own computer
(but with Ipads and laptops, that's changing)

Ruth Krumhansl :
I think they need background in the content area the data relate to, and they need a lot of support
understanding the data parameters and data visualizations. I've been surprised to learn that most
students, for example, have rarely if ever worked with maps of data.

Amanda Truett :
Mine generate their own images cause they want to pick areas and topics that interest them. I get
all kinds of things turned in, but they are mostly quite good, considering they are brand new to this.

James Acker:
To Ruth: me too!

Bob Myers :
Amanda, the career connection is important!

Sounds like RELEVANT and AUTHENTIC are important!

Ruth Krumhansl :
students like the "realness" of working with data such as GIOVANNI

James Acker:
I think that real world relevancy is vital (and that's why I like Giovanni and event visualizations, like hurricanes)

Daniel Zalles :
With one of our teachers, we gave students authoring privileges in DICCE LE and gave them starter templates with images about San Diego, then each student got to pick another area of the world to create parallel images to compare to San Diego. The teacher asked them to focus only on temperature precipitation and CO2

Amanda Truett :
Yes, Ruth, and when they believe what they are doing is RELEVANT and AUTHENTIC, not to mention probably unique, they are all over it.

I had to chase them outa the classroom...!

James Acker:
Let Dan expand a little on this example.

Sorry to put you on the spot, Dan.

Bob Myers :
I am going to be doing a workshop in a week with teachers of kids in lower SES near the Ohio River. You guys are getting me excited about showing them some neat tools.

Daniel Zalles :
Students selected places like Spain, Laos, and the Philippines to compare to San Diego.

Ruth Krumhansl :
I've authored and field tested a full year hs earth science course, and found that by the time they are seniors they expect to find all the answers in the reading, so are actually more prone to frustration when they have to think outside the box about something that doesn't have a clear answer. That means we need to start them working with messy/ noisy/ uncertain data earlier.

James Acker:
Interesting comment, Ruth. Science is rarely as clearcut as the textbooks make it seem.

Daniel Zalles :
Yes, when working with real data, students need to understand that the data do not always tell a simple story. Climate change manifests itself differently in different regions and the durations of data that are available from the satellites are pretty limited. We try to build students critical thinking through our trend guides

Amanda Truett :
Textbooks are used as reference manuals in my class. Students are expected to read peer reviewed articles and valid web resources.

James Acker:
Thanks, Dan. As part of this roundtable post-workshop report, perhaps we could show one example from this exercise.

Ruth Krumhansl :
what level do you teach again, Amanda?

James Acker:
Again, an interesting contrast between the undergraduate and K12 level.

Amanda Truett :
Freshman science (Montgomery College)

Daniel Zalles :
One of our teachers use the climate change schema I showed earlier and had students selecting data parameter of their choice from the schema, research it, creating image from Giovanni with it, and present about it to the class

Amanda Truett :
YES!

Bob Myers :
What kind of kids do you have Amanda?

Amanda Truett :
They formulate a case study, of sorts.

From all over the world. Read my earlier post. :)

Daniel Zalles :
Poor typing, let me repeat that... One of our teachers used the climate change schema I showed earlier had students select a data parameter of their choice from the schema, research it, create an image from Giovanni with it, and present about it to the class

Bob Myers :
I did, I don't know about SES

Ruth Krumhansl :
DICCE recognizes that the teacher is essential to scaffold students' work with data, and so the interface is primarily aimed at teachers who create the lessons. We still have PD work to do to support the teachers, though, at the pre-college level, since they don't tend to have the data-savviness that you need to help students deal with the unexpected. sorry - we're getting a bit out of sequence here...

James Acker:
To expand, the suburban environment of Montgomery County includes a wide range of science capabilities, and many different ethnic backgrounds and cultures. Right?

Bob Myers :
I want that schema!

Amanda Truett :
Yes Jim. :)

James Acker:
That's good, Ruth. The NASA climate change projects target both teachers and students.

Daniel Zalles :
The schema is available from the DICCE Giovanni Resources Page

Amanda Truett :
It's a challenge. But this platform bridges a lot of gaps, in my opinion, and the students

respond well.

James Acker:
One of the challenges that we've seen with DICCE at the K12 level is the time teachers have to use the system and make a project. Which is, very little time.

And any barrier, especially something we didn't anticipate, slows them down a lot.

Ruth Krumhansl :
The DICCE project has done a good job thus far, I think, of documenting the kinds of supports teachers and students need to use GIOVANNI. For example, how do they recognize bad data in a graph or map?

James Acker:
Thus a segue to the disadvantages -- as noted.

Daniel Zalles :
Amanda, what do you mean when you say that the platform bridges a lot of gaps?

James Acker:
ARSET addresses this as well in training.

Bob Myers :
At some point, I would like to make more use of DICCE so that it can be used as a tool in support of ESSEA modules (located at http://esseacourses.strategies.org)

Amanda Truett :
Daniel, language, cultural, and competencies on the freshman level. As the student noted,

images and graphics, etc. are "universal" over text.

Daniel Zalles :
OK. Thanks for the clarification

Amanda Truett :
They avoid the textual and explore the imagery, calling up all kinds of comparisons. They 'get' it.

Bob Myers :
by platform, you mean the Giovanni tool?

Amanda Truett :
Yes. DICCE. WE use all of them, and expanding to other resources, too. But the Giovanni portals are easiest for them. They like staying in one environment.

Daniel Zalles :
Bob, we'd be happy if ESSEA used DICCE

Bob Myers :
I will work on it.

Ruth Krumhansl :
re Amanda's comment about the universality of images and graphics, that brings us to an issue - it's hard to provide the support they need without writing a lot of text expanations of terminology, how to decide what color palette to use, etc.

James Acker:
I think we could learn a lot from ESSEA use of DICCE, both by students and developers

especially in comments about what's easiest to use and what's hardest to use

Amanda Truett :
I assign homework for them and they always come through . I guess they are the 'computer game' generation. It seems intuitive to them.

Bob Myers :
We could discuss this in the future. Some of you may not know that ESSEA is used for teacher professional development, getting teachers and kids to work on geoscience problems.

Amanda Truett :
I have several who want to be interns for this stuff.

James Acker:
That I think is one key part of the difference - time and flexibility. There is also the "unguided missile" aspect - sometimes students can range too far afield.

Amanda Truett :
It's an easy sell.

Daniel Zalles :
Yes, and a lot of scaffolding is needed at least partly by virtue of the way Giovanni is organized. Eventually, a wizard oriented scaffolded the query tool would be great to have as a supplemental user interface in Giovanni

Amanda Truett :
Yeah, let them go... lol.

Bob Myers :
I was sitting here thinking about letting them go and then also thinking about standards and so on.
If we could integrate these tooks into Physics, chemistry and biology, we would be making some
profound progress.

James Acker:
Some teachers use atmospheric data to teach physics.

Bob Myers :
yep, and that is one nice segue

James Acker:
Light scattering, refraction, reflection, absorption -- all of those have real world analogs.

Daniel Zalles :
Yes, and the basic daily data about air pollutants could support chemistry as well

Amanda Truett :
We have criteria that must be met, too. Learning objectives, etc etc. If you look beyond the clock
you might find that the processes involved in exploring the variables with this and then asking for
cited back-up of their explanations, you will have achieved several objectives in one assignment.

Bob Myers :
nice clarification

James Acker:
True. One " bridge" between K12 and undergraduate is the science project in high schools.

And even middle schools.

One of my colleagues here at GSFC had a daughter that used Giovanni in a middle school science project.

Of course it helps to have a father who understands the data and the tool!

Ruth Krumhansl :
pre-college teachers are time-crunched, and under huge pressure to prepare students to do well on state tests. A challenge is to get them to realize that their students will have a deeper understanding of content if they build it themselves using scientific data. We need more research that documents this.

James Acker:
Amanda's comment made me think of the value of independent learning projects. But I think they need to
be guided by a mentor.

Daniel Zalles :
It's useful to think about pedagogical alternatives. For example, you can use the data to reify knowledge of those already been taught in textbooks etc., or you can use the data as vehicle for student exploration and construction of meaning

James Acker:
Ruth: fundable project? ;-D

Ruth Krumhansl :
sure, many of them!

James Acker:
Hey Dan, what's "reify"

Amanda Truett :
Most of my students only have each other and their social groups, so they cluster around a common assignment. One semester we did 'teams' and they got quite competative.

Daniel Zalles :
Reify means to reinforce learning

James Acker:
Thanks

Ruth Krumhansl :
I found when I was teaching that students get very engaged when they have choices about what they do

James Acker:
Amanda, Bob, I think the ESSEA modules set up problems that have to be solved - invites friendly competition in who gets the best solution

Bob Myers :
I would like to interject that everytime I build a geoscience module, I also either find or write a Giovanni tutorial on how to get at the data. More of these would be useful. Maybe they are out there though and I just have not found them yet.

James Acker:
You can suggest new instructional videos for me to make.

That would also compliment DICCE.

Bob Myers :
I think Ruth said we need to make it easy for kids to get to the data.

Easy for the teachers too.

Amanda Truett :
I think the "time" thing can be mitigated if the teacher can connect several outcome criteria to one Giovanni project. That way the calendar can allow for the full project to develop and the student can follow it through.

Ruth Krumhansl :
My ideal - use the schema as a way to access the data

Bob Myers :
do you mean the climate change schema Dan showed us? I still WANT it.

Daniel Zalles :
Visit the DICCE G Resource Page. There's a lot of help on that page plus links to YouTube videos that explain how to use DICCE G.

James Acker:
Ruth, you'd have to explain that in a diagram (post workshop)?

Bob Myers :
Thanks!

James Acker:
Let me get the URL.

Ruth Krumhansl :
yes, research has found that data access through conceptual diagrams engages students more effectively
in thinking about the content while they're exploring the data sets available

James Acker:
Here it is: http://disc.sci.gsfc.nasa.gov/giovanni/additional/users-manual/dicce_resources_page/

Daniel Zalles :
The scheme is on the DICCE G Resources Page and is also available for an author in DICCE LE to make available to their students when they do a DICCE LE learning activity

And don't forget that in a week or two on real need to do is go to this simple URL -
dicce.sri.com

Bob Myers :
Dan, when you showed us that last slide with the URL's I could not highlight them to copy

Daniel Zalles :
Bad typing again -- And don't forget that in a week or two all you'll need to do is go to this simple URL - dicce.sri.com

Bob Myers :
that works!

Ruth Krumhansl :
can't wait - only one bookmark!

Amanda Truett :
LOL.

The streamline is important...

Bob Myers :
It would be cool if we could track Amanda's students through the system to see what choices they make down the line. I know this is difficult, but still, just for four years or until they enter college.

James Acker:
just a minute for our next topic

Ruth Krumhansl :
Amanda, can you explain what you mean by "the streamline"?

James Acker:
After that lol

Ruth Krumhansl :
I get it

Amanda Truett :
Everything under one umbrella. I have to toggle between links, bookmarks, too. @ Bob, one of my first cohort students is now at UMBC and majoring in environmental science - wants to do the remote sensing
forever.

ONE SUCCESSFUL KID!

So gratifying...

James Acker:
Sounds like it.   Hey, one subject I want to ask about is what more Giovanni itself could have that students and teachers might like.

Ruth Krumhansl :
that brings up that it's important for us to bring data to the range of students - from those with less experience/ inclination to those who will become obsessed

Bob Myers :
I like that! Way to go...

James Acker:
As Jennifer Wei noted, Giovanni-4 is being developed to be app-friendly.

James Acker:
I got obsessed with Peggle for awhile - and that can teach physics, too!

Amanda Truett :

Resolutions and available data dates.

Ruth Krumhansl :

I wish there was an easier way to create custom time-series that don't include every data point (without exporting to excel and deleting points)

Daniel Zalles :

Yes, I completely agree with Ruth

James Acker:

Really good point.   Did you see the G4 scatter plot example?

Bob Myers :

Jim, do you have any Giovanni tutorials or lessons in Earth Exploration Toolbook? this would really help. NEO, Image J and My NASA DATA all have some short tutorials in there.

Amanda Truett :

Do you mean extrapolate through data gaps?

James Acker:

It showed that a point on the scatter plot could be related to the position of the point on the map. Might be adaptable to choosing data out of a generated time series. (NOTE made)

James Acker:

Bob, no, EET required too much time investment. But as I said, I can do Web page and complimentary video tutorials for Giovanni and part of DICCE. You should watch the ones I've done so far. (NASAGESDISC YouTube channel).

Bob Myers :
Thank you, I will watch it.

James Acker:
One thing that the Giovanni-4 social application had was data tagging - i.e. "look at this (point, trend)"

I should say "will have" - I've seen the prototype demo

Daniel Zalles :
Back to the scatterplot topic, it would be great if a user could select a data point from the scatterplot and it would plop into a smaller data set

James Acker:
They can do that already!

Amanda Truett :
Wasn't that in one of the presentations?

James Acker:
You can see all the points that generated the scatter plot, then choose a subset of them and watch the scatterplot change.

Ruth Krumhansl :
re data-tagging comment: it's great if students can flag/ attach notes about data visualizations they are studying. Helps them keep track of their thinking about the data.

James Acker:
Amanda, yes. G4 by Chris Lynnes.

Ruth, exactly what I was thinking. I.e., "thinking out loud, then writing it down"

Daniel Zalles :
Tagging is a very useful feature in Google Earth also. If you import a Giovanni map into Google Earth, the student can tag any point on the map or dried polygon around it or a line through it. The tagging can be accompanied by explanations, photographs, and other images that the student produces

Ruth Krumhansl :
we should show the teachers how to do that

James Acker:
I wonder if that would work with a Giovanni visualization in Google Earth - it should. We'll have to play with that.

Daniel Zalles :
Yes, it would work with a Giovanni visualization

... a map visualization of course, not a scatterplot

Ruth Krumhansl :
for students to do the tagging, they'd have to be working in Google Earth

James Acker:
One thing that many of our scientists put at the top of the wish lists was the ability to average for discrete time period, say "spring" for 10 years running. Because a lot of climate change

involves seasonal trends, that would help students, too.

James Acker:
I think students like Google Earth somewhat ;-)

Amanda Truett :
Good point, Jim.

Ruth Krumhansl :
they do if you can keep them from zooming around the world

Daniel Zalles :
Google Earth has its own quirks and learning curve but it's pretty user-friendly

James Acker:
Ah yes, the fun of the Web. Where's my house?

Bob Myers :
give us the address so we can look!

James Acker:
What do you think are the most "interesting" topics or subjects for students to investigate?

Daniel Zalles :
There are lots of examples of images of Giovanni data that we saved in Google Earth and add it to you're referencing to, as well as elevation profiles for students to look at typographical

cross-sections of the areas they are investigating

James Acker:
I've seen students trying to relate El Nino or La Nina to just about everything.

Even earthquake frequency.

Daniel Zalles :
There are lots of examples of images of Giovanni data that we saved in Google Earth and added referencing to, as well as elevation profiles for students to look at typographical cross-sections of the areas they are investigating

Ruth Krumhansl :
I find that sometimes the GIOVANNI visualizations superimposed on Google Earth get a little busy. It's important not to have too much distracting information to keep them focused on the data

James Acker:
Dan, are those in DICCE-LE?

I remember the topographical plots.

Daniel Zalles :
Yes, in various curriculum projects that you can browse, such as the one about northern Alaska

James Acker:
Those are publically viewable, correct?

Daniel Zalles :

Yes. They are published projects, hence viewable.

Amanda Truett :
In terms of student interest, we go over all the options and then show how to zoom in on areas. Then I ask what the most important environmental problem in their country of origin is, and if they think they can visualize that, or any variable related to it. Then I let them go. They can use the DC metro area as a "comp" or if they are from an industrialized area, they can use the arctic or rain forest as a "comp" and see if there are significant differences. Then they have to brainstorm about what they find and why it's important.

Ruth Krumhansl :
neat

Bob Myers :
there's the relevant and authentic again

James Acker:
The weather has been in the news a lot this year - I think relating drought to water resources would be a good way to go.

Daniel Zalles :
There are no easy answers as to how much information any individual student can handle at any particular time with a particular visualization. I think it boils down to providing teachers with the capacity to make appropriate instructional decisions with the data and have the ability to create their own images with appropriate levels of cognitive demand on their students

Ruth Krumhansl :
so the easier it is to adapt the images, the better

James Acker:
And building from the simple to the more complex

I think that one thing it would be interesting to do to improve the capacity of understanding what a data map means would be to show an animation of rainfall amounts from a hurricane.

Ruth Krumhansl :
explain more

Daniel Zalles :
In DICCE LE, teachers can take an already developed learning activity (we call these curriculum "projects")
and adapt them for their students. They can in the process take out the old images and put in new ones that they think the old ones are too demanding on their students. They also can provide more scaffolding
of analysis of the images through the way they construct their adaptations to those activities.

James Acker:
The characterisic shape of the hurricane frequently is visible in 3-hourly or daily data

and can be related to an animation or image of the hurricane in "true color".

Sorry dan

Good point, too. Teachers will learn what their students comprehend best. That is similar to what I was describing.

Ruth Krumhansl :
I guess I meant by adapting the images being able to show only the data points they want, easily adjust color palettes and add labels, etc. Now they have to put image in ppt to do that

James Acker:
Or Excel.

Daniel Zalles :
Yes Ruth, those would all be nice features. Luckily, Google Earth provides some of this flexibility

James Acker:
We are on somewhat parallel tracks here. I'd like to do the classic wrap-up strategy - where should we go from here regarding Giovanni and education (beyond what DICCE is doing now)? In that, I mean are there ways and places to present it, and get feedback?

Not all at once.

Christopher Lynnes:
G4 will include a different kind of map renderer that will provide more flexibility for palettes.

James Acker:
Thanks Chris.

Christopher Lynnes:
It may even be possible to support user-defined palettes for those maps.

James Acker:
Ruth will love that!

Amanda Truett :
When is G4 going to be ready?

Daniel Zalles :
I'm looking forward to G4

Christopher Lynnes:
It will be several months before all of G3 is put into G4. However, a beta version is coming out this week with aerosol datasets and some core services.

Christopher Lynnes:
Um, it won't have that map/palette thing this week though :-)

Daniel Zalles :
I have to step away for a minute. I'll send a chat when I'm back

Ruth Krumhansl :
love those color palettes - especially peppermint

James Acker:
I think G4 for education will have to have some type of label for "education-friendly" data sets.
As Chris showed, it has a keyword search. Somehow we'll have to tag data sets that would be most useful for education.

Bob Myers :
I am sitting here thinking of ways to get Giovanni a wider audience and usage. Have you considered putting teacher developed lessons along with instructions on the education portion of your site Jim? Thinking about MyNASA Data led me to suggest this.

James Acker:
So teachers and students can find them easily.

Christopher Lynnes:
We may be able to identify an education version of the "Omnibus" portal, with all of the most education-friendly datasets available.

James Acker:
I think pointing to the DICCE-LE published ones, which we haven't done yet, is the best way to start

Ruth Krumhansl :
We've found that it is a challenge to explain the data parameters, how they were measured, and what the measurements mean. The data parameters that are flagged for educational use should have clear descriptions of these things that are understandable to novices.

James Acker:
On our DICCE-Giovanni side. Good idea, Dan?

James Acker:
We will need to strive to retain what we've done for the DICCE-G Basic data parameters. Including the ones we're still working on!

Ruth Krumhansl :
yes, we're still working on the explanations!

Bob Myers :
If you go to the NEO site, it has explanations of each data set.

Daniel Zalles :
I'm back

James Acker:
And NEO has a much more limited number of data sets than Giovanni

James Acker:
Dan, I asked if we could make links available to the DICCE-LE published projects from
DICCE-G pages; Bob suggested doing that

Daniel Zalles :
Yes, each published project in DICCE LE has its own distinctive URL

James Acker:
We'll set that up. Bob, when does your workshop with the teachers start?

Bob Myers :
on the 11th of OCT

Ruth Krumhansl :
We're also developing assessment items to go with specific data parameters, to make sure students
understand them (one was shown in Dan's presentation). These are in DICCE-LE along with
the projects

James Acker:
I can have the links ready by then

Daniel Zalles :
Our new DICCE LE presentation tool is a powerful way of introducing difficult data parameters with illustrative images. We could link to these presentations from DICCE GE. For example, the one were working on about long wave radiation

James Acker:
on the Giovanni side; Dan can probably also point them to you directly

Bob Myers :
Thanks guys. I can use these projects as guides to ESSEA users

James Acker:
And also the ESSEA modules that use Giovanni.

Bob Myers :
yes

Daniel Zalles :
Bob, send me an e-mail sometime about what might be helpful for that workshop.

Bob Myers :
ok

James Acker:
I think we've covered a lot of ground in this discussion -- editing the transcript will be fun. I'll try to color code it and make a PDF; the color codes will indicate different themes of what we discussed.

Amanda Truett :
Cool. :)

James Acker:
Any final comments?

Daniel Zalles :
Yes, and please excuse my poor syntax. I use a dictation program and it doesn't always pick up what I'm saying very well

James Acker:
(I've been here since 7 AM)

Bob Myers :
You all have given me some really good ideas for projects I am working on. Thanks!

James Acker:
Dan, I'm impressed with it!

Amanda Truett :
When can we expect to see the pdf's of all the presentations?

James Acker:

I'm going to ask the presenters to try and get them to me by the end of next week

James Acker:

Some will probably tell me to use what they sent me

Amanda Truett :

Nice work, Jim. Reeeelly good workshop and is loaded with new things I can use. Great job.

Daniel Zalles :

Ok. Do you want power points or PDFs?

James Acker:

but I want them to be able to tweak them first

Amanda Truett :

Power Points are good, too.

James Acker:

Powerpoints. I will make the edited chat log transcript an accompanying text file and PDF.

Bob Myers :

Get some rest Jim

Amanda Truett :

K.

James Acker:
PDF conversion of Powerpoints doesn't capture things like animated GIFs.

Amanda Truett :
Sleep all weekend. :) Tomorrow I introduce Giovanni to my new classes.

Daniel Zalles :
OK. Very nice discussion and thank you again Jim for putting on this workshop. It certainly has been a new experience for me to do something entirely with no audio.

James Acker:
I have to do my travel expenses from last week's trip tomorrow.

Amanda Truett :
Yes, it is quiet, isn't it?

Daniel Zalles :
Best of luck to you Amanda

Amanda Truett :
Thanks Dan. :) I love my job. ..

Ruth Krumhansl :
Great chatting with everyone!

Bob Myers :
How about we share emails?

James Acker:
Several people asked about audio -- this was a low-cost way to capture comments. If we do have audio, I'd like to hire a court transcriber to get the entire discussion

Bob Myers :
bob_myers at strategies.org

Amanda Truett :
amanda.truett@montgomerycollege.edu

Maksym Petrenko:
Thank you Jim and everybody!

Ruth Krumhansl :
rkrumhansl at edc.org

Daniel Zalles :
daniel.zalles at sri.com

James Acker:
I'll edit them in the published transcript so you get less spam.
james.g.acker at nasa.gov

Maksym Petrenko:
maksym.petrenko at nasa.gov

James Acker:
using 'at' for @

James Acker:
And a major gigantic thanks to Atheer Al-Jazrawi. (Loud applause)

Bob Myers :
Signing off now. Thanks.

Ruth Krumhansl :
bye

James Acker:
Thanks Bob!

Daniel Zalles :
Bye

Amanda Truett :
Bye. Thanks again.

James Acker:
So with a quick ending, I want to thank everyone for this experimental first-ever global workshop on Giovanni. I'll be sending out emails and writing news articles, and publishing the presentations and chat logs on our Web site.

I think Greg Leptoukh would have been pleased.

Jennifer Wei:
Thank you, Jim, for putting this together

James Acker:
And he would have had about 50 ideas he'd want to implement in Giovanni.

Next week. ;-)

Have a nice day, everyone.

Zhen Liu :
Thanks Jim. Look forward to an even beter GIOVANNI.Bye

better